Derivatives — Functions: sin, cos, e^x, ln

Name: _____ Date: _____

Find f'(x). Use the derivative of each function, and the chain rule when there is an inside.

1. **$f(x) = \cos x - 5e^x - \ln x$**

   $f'(x) = -\sin x - 5e^x - \frac{1}{x}$

2. **$f(x) = 5 \sin x - 4 \cos x$**

3. **$f(x) = -5 \sin x - 4e^x - 5 \ln x$**

4. **$f(x) = \sin x - 4 \cos x$**

5. **$f(x) = -5 \cos x - e^x$**

6. **$f(x) = 5 \sin x - \cos x - 2 \ln x$**

Derivatives · Functions: sin, cos, e^x, ln — Answer key

1. $f(x) = \cos x - 5e^x - \ln x \rightarrow f'(x) = -\sin x - 5e^x - \frac{1}{x}$

2. $f(x) = 5 \sin x - 4 \cos x \rightarrow f'(x) = 5 \cos x + 4 \sin x$

3. $f(x) = -5 \sin x - 4e^x - 5 \ln x \rightarrow f'(x) = -5 \cos x - 4e^x - \frac{5}{x}$

4. $f(x) = \sin x - 4 \cos x \rightarrow f'(x) = \cos x + 4 \sin x$

5. $f(x) = -5 \cos x - e^x \rightarrow f'(x) = 5 \sin x - e^x$

6. $f(x) = 5 \sin x - \cos x - 2 \ln x \rightarrow f'(x) = 5 \cos x + \sin x - \frac{2}{x}$